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Klantzman

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(54) **LIQUID SAMPLE PUMP WITH INTEGRAL SELF-CLEANING FILTER ELEMENT**

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(21) Appl. No.: **14/155,341**

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(51) **Int. Cl.**
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F04B 13/00 (2006.01)

(57) **ABSTRACT**

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CPC **F04B 13/00** (2013.01)

In combination, a liquid sample pump and an integral self-cleaning filter element will elongate the maintenance interval for the pump which saves on time and labor costs. The filter element itself is small, economical to make and forms an integral part of the liquid sample pump. A flow passageway continuously directs turbulent liquid to the underside of the filter element to sweep debris from the filter element and return such debris to the pipeline. When it is necessary to service the liquid sample pump, it is quick and easy to remove and replace the filter element, which also saves on time and labor costs. A bleed valve assembly allows air to be bled from the sample pump prior to operation, enhancing seal life. An optional muffler assembly excludes insects from the inside of the sample pump, again elongating maintenance intervals. An optional return valve assembly allows unused sample to be returned to the pipeline, thus benefitting the environment. The filter element may be formed from a metal screen or a sintered metal disk.

(58) **Field of Classification Search**
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G01N 1/2035; G01N 1/2042; G01N
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G01N 2001/227
USPC 73/863.23
See application file for complete search history.

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15 Claims, 13 Drawing Sheets

